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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/859,497	05/18/2001	Michael E. Pilcher	108620	5041
25944	7590	10/18/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			WARE, CICELY Q	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/859,497	Applicant(s) PILCHER, MICHAEL E.	
	Examiner Cicely Ware	Art Unit 2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6,9-14,15, 17,19 and 22-27 is/are rejected.
- 7) ☒ Claim(s) 3,5,7,8,16,18,20 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - a. Pg. 1, line 4, examiner suggests applicant insert the appropriate US Application number for clarification purposes.
 - b. Pg. 1, line 10, applicant uses "envelop". Examiner suggests using "envelope" for clarification purposes. Applicant uses this word throughout the disclosure. Examiner suggests applicant correct all instances.
 - c. Pg. 1, lines 18-19, applicant uses the phrase "higher resource requirements which results in higher". Examiner suggests using "higher resource requirements which result in higher" for clarification purposes.
 - d. Pg. 2, line 8, applicant uses the phrase "block diagram of a one system". Examiner suggests using "block diagram of one system" for clarification purposes. Appropriate correction is required.
2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claims 1, 4, 26 and 27 are objected to because of the following informalities:
- a. Claim 1, line 7, claim 26, line 14, claim 27, line 1, applicant uses "envelop". Examiner suggests using "envelope" for clarification purposes. Applicant uses this word throughout the claims. Examiner suggests applicant correct all instances. Appropriate correction is required.
- b. Claim 4, line 2, applicant uses the phrase "comprising cross-correlating each". Examiner suggests using "comprising: cross-correlating each" for clarification purposes.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 14, 15, 17, 25, 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Feher (US Patent 6,445,749).

(1) With regard to claim 14, Feher discloses in (Fig. 18) an apparatus that outputs signals that combines into a constant envelop combined signal, comprising: a controller (104); and a memory (1802) coupled to the controller, the controller

generating a combined signal that is a combination of a plurality of input signals, and attenuating selected ones of the input signals to generate attenuated input signals, wherein the attenuated input signals and other non-attenuated input signals may be output for combination to form the constant envelop combined signal (Fig. 22, col. 12, lines 13-24, col. 13, lines 51-54, col. 15, liens 9-11, 21-26, 59-61, 64-65).

(2) With regard to claim 15, claim 15 inherits all the limitations of claim 14. Feher further discloses in (Fig. 17, Fig. 18 (104)) wherein the controller comprises: a similarity measurement device (1606); and an attenuation value generator (1605), the similarity measurement device generating a similarity measurement between each of the input signals and the combined signal, and the attenuation value generator selecting ones of the input signals based on the similarity measurement (col. 12, lines 12-23).

(3) With regard to claim 17, claim 17 inherits all the limitations of claim 15. Feher further discloses in (Fig. 17) wherein the similarity device generates similarity measurement by cross-correlating each of the input signals (1606) with the combined signal (1605) (col. 11, lines 58-63, col. 12, lines 19-23).

(4) With regard to claim 25, claim 25 inherits all the limitations of claim 14. Feher further discloses the apparatus generates the combined signal using analog or digital techniques (col. 12, lines 19-24, col. 14, lines 13-16).

(5) With regard to claim 26, claim 26 inherits all the limitations of claims 14 and 15. Feher further discloses in (Fig. 17) a combiner (1601) that generates a combined signal that is a combination of a plurality of input signals; an attenuator (1604) that attenuates the selected ones of the input signals to generate attenuated input signals;

and an output interface that outputs the attenuated input signals and other non-attenuated input signals that may be combined to form the constant envelope combined signal (col. 11, lines 59-63, col. 12, lines 4-6, 12-15, col. 13, lines 51-54).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 2, 4, 6, 9, 10-13, 19, 22-24, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feher (US Patent 6,445,749) as applied to claims 14 and 15 above, in view of Cangiani et al. (US Patent 6,335,951).

(1) With regard to claim 1, Feher discloses in (Fig. 17) attenuating selected ones (1605) of the input signals (1601) to generate attenuated input signals (1606); and outputting the attenuated input signals and other non-attenuated input signals for generating the constant envelop combined signal (Fig. 8 (85, 86, 93, 92), col. 12, lines 12-23, col. 13, lines 51-54).

However Feher does not disclose a method for generating a constant envelope combined signal, comprising: generating a combined signal that is a combination of a plurality of input signals.

However Cangiani et al. discloses in (Fig. 3, Fig. 8, Fig. 9) a method for generating a constant envelop combined signal, comprising: generating a combined

signal that is a combination of a plurality of input signals (col. 2, lines 29-32, col. 4, lines 13-17).

Therefore it would have been obvious to one of ordinary skill in the art to modify Feher to incorporate a method for generating a constant envelope combined signal, comprising: generating a combined signal that is a combination of a plurality of input signals so that a highly efficient saturated power amplifier can be utilized (Cangiani et al., col. 2, lines 35-37).

(2) With regard to claim 2, claim 2 inherits all the limitations of claim 1. Cangiani et al. further discloses in (Fig. 12) generating a similarity measurement between each of the input signals and the combined signal; and selecting ones of the input signals based on the similarity measurement (col. 5, lines 55-62, col. 6, lines 4-6, 9-13).

Cangiani discloses correlation measurements. It is well known in the art that correlation measurements are similarity measurements.

(3) With regard to claim 4, claim 4 inherits all the limitations of claim 2. Feher further discloses the generating a similarity measurement comprising: cross-correlating each of the input signals with the combined signal (col. 11, lines 58-63, col. 12, lines 19-23).

(4) With regard to claim 6, claim 6 inherits all the limitations of claim 2. Cangiani et al. further discloses the selecting comprising: comparing the similarity measurements with one of a predetermined selection threshold value or a parameter based on a combined signal power value to generate comparison results; and selecting the ones of

the input signals based on the comparison results (Fig. 12, col. 5, lines 55-62, col. 6, lines 9-13).

(5) With regard to claim 9, claim 9 inherits all the limitations of claim 1. Cangiani et al. further discloses generating attenuation values corresponding to each of the selected ones of the input signals (Fig. 12, col. 5, lines 55-62).

(6) With regard to claim 10, claim 10 inherits all the limitations of claim 9. Cangiani et al. further discloses generating attenuation values comprising one of: selecting one of a predetermined attenuation value or an generated attenuation value based on a number of selected ones of the input signals; generating an attenuation value based on an amount that the combined signal exceeded one of a threshold or a combined signal power value; generating an attenuation value for each of the selected ones of the input signals based on a magnitude of the similarity measurements; or generating attenuation values for each of the selected ones of the input signals based on at least one of magnitudes of the similarity measurements, the combined signal power value, or the amount that the combined signal exceeded one of the threshold or the combined signal power value (Fig. 12, col. 5, lines 55-62).

(7) With regard to claim 11, claim 11 inherits all the limitations of claim 1. Cangiani et al. further discloses wherein the combined signal is generated by summing the input signals (col. 4, lines 13-17).

(8) With regard to claim 12, claim 12 inherits all the limitations of claim 1. Feher further discloses the generating a combined signal, the attenuating selected ones of the input signals, and the outputting the attenuated input signals and other non-attenuated

input signals are performed using analog or digital techniques (col. 12, lines 19-24, col. 14, lines 13-16).

(9) With regard to claim 13, claim 13 inherits all the limitations of claims 1, 2 and 6.

(10) With regard to claim 19, claim 19 inherits all the limitations of claim 15. Cangiani et al. further discloses wherein the attenuation value generator selects the ones of the input signals by: comparing the similarity measurements with one of a predetermined selection threshold value or a parameter based on a combined signal power value to generate comparison results; and selecting the ones of the input signals based on the comparison results (Fig. 12, col. 5, lines 55-62, col. 6, lines 9-13).

(11) With regard to claim 22, claim 22 inherits all the limitations of claim 15. Cangiani et al. further discloses wherein the attenuation value generator generates attenuation values corresponding to each of the selected ones of the input signals (Fig. 12, col. 5, lines 55-62).

(12) With regard to claim 23, claim 23 inherits all the limitations of claim 15. Cangiani et al. further discloses wherein the attenuation value generator generates attenuation values by one of: selecting one of a predetermined attenuation value or an generated attenuation value based on a number of selected ones of the input signals; generating an attenuation value based on an amount that the combined signal exceeded one of a threshold or a combined signal power value; generating an attenuation value for each of the selected ones of the input signals based on a magnitude of the similarity measurements; or generating attenuation values for each of

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the selected ones of the input signals based on at least one of magnitudes of the similarity measurements, the combined signal power value, or the amount that the combined signal exceeded one of the threshold or the combined signal power value (Fig. 12, col. 5, lines 55-62).

(13) With regard to claim 24, claim 24 inherits all the limitations of claim 14.

Cangiani et al. further discloses wherein the combined signal is generated by summing the input signals (col. 4, lines 13-17).

(14) With regard to claim 27, claim 27 inherits all the limitations of claims 1, 2 and 6.

Allowable Subject Matter

8. Claims 3, 5, 7, 8, 16, 18, 20-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The instant application discloses a method for generating a constant envelope signal. Prior art references show similar methods but fail to teach: **“generating a similarity measurement comprising: multiplying time values of each of the input signals with corresponding time values of the combined signal to generate products; and summing the products to form the similarity measurement”**, as in claim 3; **“the cross-correlating comprising: sweeping one of each of the input signals and the combined signal pass each other; and generating a dot product**

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for each sweep increment between overlapping portions of each of the input signals and the combined signal”, as in claim 5; “the selecting comprising: comparing the similarity measurements with each other; and selecting N number of input signals that correspond to N largest similarity measurements, where N is a positive integer and determining a value for N by empirical analysis of combined signals”, as in claim 7 and 8; “wherein the similarity measurement device generates the similarity measurement by multiplying sample values of each of the input signals with corresponding values of the combined signal to generate products, and summing the products to form the similarity measurement”, as in claim 16; “wherein the cross-correlating comprises: sweeping one of each of the input signals and the combined signal pass each other; and generating a dot product for each sweep increment between overlapping portions of each of the input signals and the combined signal”, as in claim 18; “wherein the attenuation value generator selects the ones of the input signals by: comparing the similarity measurements with each other; and selecting N number of input signals that correspond to N largest similarity measurements, where N is a positive integer, as in claim 20; and “wherein a value for N is determined by empirical analysis of combined signals”, as in claim 21.

Conclusion

9. The prior art made record of and not relied upon is considered pertinent to applicant's disclosure:

- a. MacDavid US Patent 4,270,208 discloses a threshold generator.
- b. Bauml et al. US Patent 6,125,103 (cited by applicant) discloses a method and device for reducing the crest factor in digital transmission procedures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cicely Ware whose telephone number is 571-272-3047. The examiner can normally be reached on Monday – Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Cicely Ware

cqw
October 14, 2004



AMANDA T. LE
PRIMARY EXAMINER